

**AMENDMENT TO THE ABSTRACT:**

Please replace the following substitute abstract for the abstract currently on file:

--A solid proton exchange membrane and a membrane-electrode assembly (MEA) for use in fabricating an inexpensive and efficient proton exchange fuel cell (PEFC) which enables direct use of an organic fuel without a reformer and use of hydrogen gas. In particular, an electrochemical cell including a solid electrolyte membrane made of one or plural kinds of layered silicate minerals or intercalation compounds. The layered silicate minerals can be easily fabricated into a solid electrolyte membrane which shows a "molecular sieve effect" on the target fuel if the density and impregnated liquid contents are properly controlled. The catalyst can be selected from a wide range of candidate materials. The use of the layered silicate mineral allows to fabricate an inexpensive direct methanol fuel cell (DMFC) and a realistic direct ethanol fuel cell (DEFC). Furthermore, an energy-efficient PEFC using hydrogen gas can also be produced therefrom.--